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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,039	12/20/2001	Feng Niu	CM01545L	3665

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MOTOROLA, INC
INTELLECTUAL PROPERTY SECTION
LAW DEPT
8000 WEST SUNRISE BLVD
FT LAUDERDAL, FL 33322

EXAMINER

SUMMONS, BARBARA

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,039

Applicant(s)

Niu et al.

Examiner

Barbara Summons

Group Art Unit

2817

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 (three) MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1 - 36 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☒ Claim(s) 1 - 25 and 34 - 36 is/are allowed.
- ☒ Claim(s) 26 and 29 - 32 is/are rejected.
- ☒ Claim(s) 27, 28 and 33 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 26 and 29 are rejected under 35 U.S.C. § 102(b) as being anticipated by Neukermans et al. U.S. 5,969,465.

Fig. 2 of Neukermans et al. discloses a microelectromechanical system (see e.g. the Title) comprising a torsional hinge 56 that includes: a first end attached to frame 54; a second end attached to a resonator 52; a length dimension between the ends; and a width that is measured perpendicular to the length dimension and varies as a function of the position along the length because the width at positions by notch 88 are varied from the width at other positions along the length. Regarding claim 29, the notch/narrow section 88 is at the first end attached to frame 54.

3. Claims 26 and 29-32 are rejected under 35 U.S.C. § 102(e) as being anticipated by Turner et al. U.S. 6,497,141.

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Fig. 1 of Turner et al. discloses a microelectromechanical system (see e.g. the Title) comprising a torsional hinge 16 that includes: a first end attached to the substrate at mounting post 18 (see col. 5, lns. 62-64); a second end attached to the substrate at mounting post 20; a length dimension between the ends; and a width that is measured perpendicular to the length dimension and varies as a function of the position along the length because the width at positions near the middle of the hinge 16 are wider than the narrower width sections at both ends of the hinge near mounting posts 18 and 20. Regarding claims 31 and 32, the widths measured at all positions between the first and second ends are "equal to at least about" the value of the widths at the equal narrower sections at the first and second ends, wherein the Examiner considers "equal to at least about" to have the meaning of --equal to or greater than--.

Allowable Subject Matter

4. Claims 1-25 and 34-36 are allowable over the prior art of record.
5. Claims 27, 28, and 33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the prior art of record does not disclose or fairly suggest a microelectromechanical (MEMs) system having a torsional hinge with a corrugated side edge. Generally, the prior art discloses torsional hinges in MEMs systems having shapes that are linear,

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serpentine, concentric spirals, or saw-tooth (see the other prior art of record discussed below).

Regarding claim 34, the prior art of record does not disclose or suggest a MEMs system torsional hinge that has a plurality of holes through the hinge. Regarding claims 27, 28 and 33, the prior art of record does not disclose or suggest a MEMs system torsional hinge that has a width varied along its length and is also: tapered (claim 27); or coupled to a flexural mode resonant beam.

The various dependent claims are considered allowable at least for the same reasons as their corresponding independent claims 1 and 34.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tang et al. U.S. 5,025,346 discloses MEMs resonator systems including torsional hinges that are concentric spirals (43 and 44 in Fig. 5) or are serpentine shaped (46-49 in Fig. 6).

Nguyen et al. U.S. 6,249,073 discloses quarter-wavelength torsional hinges 54 (Fig. 9) connected to a flexural mode resonator beam 56 (see Figs. 7 and 8), but the hinges are not varied in width and do not have holes in them.

Clark et al. U.S. 6,067,858 discloses saw-toothed torsional hinges (see Fig. 1).

8. Any inquiry concerning this communication should be directed to Barbara Summons at telephone number (703) 308-4947, FAX no. (703) 308-7724, receptionist's no. (703) 308-0956, Supervisory Examiner Bob Pascal (703) 308-4909.



Barbara Summons
Primary Examiner
Art Unit 2817

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May 30, 2003